



## **Evidence of Synergistic Behavior of Swelling and Release the Composite of Superabsorbent Hydrogel Based on Rice Husk Cellulose**

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**Abstract :** The composite of superabsorbent hydrogel are based on cellulose isolated from rice husk is used as the backbone in the synthesis of superabsorbent cellulose-g-acrylic acid (SAA), cellulose-g-acrylamide (SAM) and compared with the superabsorbent cellulose-g-acrylic acid co acrilamida (SAA-co-SAM) using N , N-methylenebisacrylamide (MBA) as the crosslinker and potassium persulfate as initiator. In this work, we studied the behavior of swelling to water and urea. By observing the behavior of each superabsorbent swelling and supported by SEM and XRD characterization can be seen that SAA swelling capacity greater than SAM. When the two monomers are used for copolymerization process, that is the superabsorbent SAA-co-SAM get better swelling capacity, it is seen of the biggest swelling capacity. The capacity of release conducted on urea solution in the soil, obtained SAM better than SAA, and using two monomers acrylic acid and acrylamide (SAA-co-SAM) obtained the best results until 21 days, with capacity of release 70%.

**Keywords :** composite, superabsorbent, hydrogel, cellulose, acrylamide, acrylic acid.

**Helmiyati *et al* /**International Journal of ChemTech Research, 2017,10(15): 83-89.

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